

What is claimed is:

1 1. An apparatus for controlling movement comprising:
2 a moveable member for movement along a fixed path of travel
3 between first and second end limits of movement;
4 first means including a reversible electric motor for selectively
5 driving the moveable member in a first direction and in a second direction
6 opposite from the first direction along the fixed path of travel;
7 at least one sensor disposed between the first means and the
8 moveable member for generating at least one input signal corresponding to
9 motion of the moveable member along the fixed path of travel; and
10 control means responsive to said at least one input signal for
11 selectively actuating said first means in accordance with a control program.

1 2. The apparatus of claim 1 further comprising:
2 said at least one sensor positioned with respect to the
3 moveable member for generating said at least one input signal, said at least
4 one input signal including a position input signal to the control means
5 representative of a first end limit of movement position and a second end
6 limit of movement position of the moveable member.

1 3. The apparatus of claim 1 further comprising:
2 a control signal generator for generating said at least one input
3 signal, said at least one input signal including an operator input signal to the
4 control means in response to operator input.

1 4. The apparatus of claim 1 further comprising:
2 said at least one sensor for generating said at least one input
3 signal, said at least one input signal including an actual position input signal
4 to the control means representative of an actual position of the moveable

5 member along a fixed path of travel between a first end/limit of movement
6 position and a second end limit of movement position.

1 5. The apparatus of claim 1 further comprising:
2 second means including a second electric motor for selectively
3 driving a member-engaging part between a first position to engage the
4 moveable member with a frame and a second position where the moveable
5 member is disengaged with respect to the frame; and
6 said at least one sensor positioned with respect to the second
7 means for generating said at least one input signal, said at least one input
8 signal including an engaged-disengaged input signal to the control means
9 representative of the first position and the second position of the member-
10 engaging part.

1 6. The apparatus of claim 5 further comprising:
2 said at least one sensor positioned with respect to the frame
3 and the moveable member for generating said at least one input signal, said
4 at least one input signal including an ajar input signal to the control means
5 representative of a moveable member ajar condition.

1 7. The apparatus of claim 1 wherein the control means further
2 comprises:
3 a central processing unit for receiving said at least one input
4 signal and for generating at least one output signal in accordance with the
5 control program.

1 8. The apparatus of claim 1 further comprising:
2 a clutch disposed between the reversible electric motor and the
3 moveable closure;

10 a programmable controller responsive to said at least one input
11 signal for selectively regulating speed of the translator in accordance with a
12 control program.

5 said at least one sensor including a motion sensor operably
6 positioned with respect to said clutch for sensing movement of the clutch in
7 response to movement of the moveable member; and

1 12. The apparatus of claim 10 further comprising:
2 a striker movable between a first position and a second
3 position, the striker operably engagable with the moveable member when the
4 moveable member is in proximity with the first end limit of movement along
5 the fixed path;

10 said at least one sensor including a position sensor disposed
11 with respect to the second translator for generating at least one input
12 position signal, said at least one input position signal including an engaged-
13 disengaged input signal to the controller representative of the first position
14 and the second position.

2 said at least one sensor including a position sensor for sensing
3 a parameter corresponding to an actual position of the moveable closure
4 anywhere along the fixed path and for generating an input signal to the
5 control means representative of an actual position of the moveable closure
6 along the fixed path as the moveable closure is moved between the first and
7 second end limits of movement.

1 *Sub 7* 20. A method for controlling movement of a moveable member,
2 the method comprising the steps of:

3 selectively driving the moveable member in a first direction and
4 in a second direction opposite from the first direction with first means
5 including a reversible electric motor;

6 generating at least one input signal corresponding to motion of
7 the moveable member along the fixed path of travel with at least one sensor
8 positioned between the first means and the moveable member; and
9 selectively actuating said first means with control means
10 responsive to at least one input signal in accordance with a control program.

1 21. The method of claim 20 further comprising the step of:
2 generating said input signal with at least one sensor positioned
3 with respect to the moveable member, said input signal including an input
4 signal to the control means representative of a first position and a second
5 position of the moveable member.

1 22. The method of claim 20 further comprising the step of:
2 generating said input signal with a control signal generator,
3 said input signal including an input signal to the control means in response
4 to operator input.

1 ~~23. The method of claim 20 further comprising the step of:~~

2 generating said input signal with at least one sensor positioned
 3 between the moveable member and the first means, said input signal
 4 including an input signal to the control means representative of movement of
 5 the moveable member along a fixed path of travel.

1 24. The method of claim 20 further comprising the step of:
 2 generating said input signal with at least one sensor, said input
 3 signal including an input signal to the control means representative of an
 4 actual position of the moveable member along a fixed path of travel between
 5 a first position and a second position.

1 25. The method of claim 20 further comprising the step of:
 2 selectively driving a member-engaging member between a first
 3 position to engage the moveable member with a frame and a second position
 4 where the moveable member is disengaged with respect to the frame with
 5 second means including a second electric motor; and
 6 generating said input signal with at least one sensor positioned
 7 with respect to the second means, said input signal including an input signal
 8 to the control means representative of the first position and the second
 9 position.

1 26. The method of claim 25 further comprising the step of:
 2 generating said input signal with at least one sensor positioned
 3 with respect to the frame and the moveable member, said input signal
 4 including an input signal to the control means representative of a moveable
 5 member ajar condition.

1 27. The method of claim 20 wherein the control means further
 2 comprises the steps of:

3 receiving said at least one input signal with a central
 4 ~~processing unit; and~~

5 generating at least one output signal in accordance with the
6 control program stored in memory.

1 28. The method of claim 20 wherein the control means further
2 comprises the step of:

3 controlling a speed of the moveable member while moving
4 between a first position and a second position in response to said input
5 signal from the first means, wherein the first means includes a sensor
6 mounted to a portion of a clutch disposed between the reversible electric
7 motor and the moveable member.

1 29. The method of claim 20 wherein the control means further
2 comprises the step of:

3 detecting an obstruction along a fixed path of the moveable
4 member while the moveable member is moving between an first position and
5 a second position in response to said input signal from the first means,
6 wherein the first means includes a sensor connected to a portion of a clutch
7 disposed between the reversible electric motor and the moveable member.

TOPTID 3252300